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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/500,548

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Luzhou Xu

CN 020001

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NXP, B.V.

NXP INTELLECTUAL PROPERTY DEPARTMENT

M/S41-SJ

1109 MCKAY DRIVE

SAN JOSE, CA 95131

EXAMINER

FLORES, LEON

ART UNIT

PAPER NUMBER

2611

NOTIFICATION DATE

DELIVERY MODE

06/30/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary	Application No. 10/500,548	Applicant(s) XU ET AL.	
	Examiner LEON FLORES	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 8 and 12-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claim 1-7, 9-11 have been considered but are moot in view of the new ground(s) of rejection.

Response to Remarks

Applicant asserts that, *"the bases for the various rejections have not been made clear to Applicant. Specifically, the Examiner's rejections at times rely upon a combination of the Sih and Prysby references, while at other times fail to recite the Prysby reference at all. The distinction between the rejections that use the Prsyby reference and those that do not has not been explained. Moreover, there are discrepancies between what the Examiner has indicated as the bases for the rejections in the headings and the respective discussions (i. e., one heading indicates a combination with the Prysby reference but no discussion thereof is provided; another heading indicates that the Prysby reference is not included, but the discussion relies upon the Prysby reference)"*.

The examiner agrees. In page 5 of the last office action, there is a minor typographical error in the heading. The heading should have not included the reference of Prysby. In view of these errors, a new final rejection has been issued in order to clarify the examiner's position with regards to the last office action. (3/28/2008)

Applicant further asserts that, *"In the first such discussion (at page 5 of the final office action), Applicant respectfully submits that no mention of the Prysby reference is made and that the rejection is improper for failing to provide a reason to modify the Sih*

reference. Regarding the rationale to modify, the Examiner first states that no difference is seen between providing frequency offset compensation at the symbol level as opposed to at the sample level. Thus, the Examiner appears to assert that there is no support in the record for the skilled artisan to believe that one type compensation has a benefit relative to the other. Thus, the Examiner's reason to modify the Sih reference to implement a different type of compensation for the benefit of compensating for the channel improvements is either at odds with the previous assertion or relies upon an improper conclusory statement".

The examiner disagrees. The reason to modify the Sih reference was stated in the last office action, and this reason was to compensate for channel impairments. One skilled in the art would know that frequency shift (error) is due to the imperfection of the channel through which the received signal propagated. Furthermore, the applicant fails to mention an advantage of compensating for frequency offset at the symbol level, as opposed to at the sample level if the objective is to compensate for the channel impairments. (frequency error)

Applicant further asserts that, *"Without support in the record for compensating at the symbol level in the manner claimed are found in Applicant's specification, the Examiner appears to be relying upon improper hindsight reconstruction from Applicant's specification. Due to conflicting statements by the Examiner and the lack of support in the record to support the Examiner's alleged reason to implement the asserted combination, Applicant respectfully submits that the rejection cannot stand and requests that it be withdrawn".*

The examiner respectfully disagrees. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Applicant further asserts that, *"In the second such discussion (at page 11 of the final office action), the Examiner attempts to correct alleged deficiencies in the Sih reference by adding elements of the Prysby reference relating to symbol level corrections. The Examiner's discussion fails to provide adequate details regarding how the asserted combination is to be implemented. The Examiner's explanation simply states that the combination is an incorporation of a feature from Prysby. No details are provided as to how the feature from Prysby would be incorporated into the receiver of Sih. Neither of the references appears to suggest that the two different compensation mechanisms would function together. Neither of the references (nor the Examiner) teaches or suggests how such a combination would be implemented"*.

The examiner respectfully disagrees. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or

motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the reference of Prysby does compensate for channel impairments (frequency shift) at the symbol level.

Applicant further asserts that, *"the Prysby reference explicitly teaches away from the Examiner's asserted combination as Col. 2, lines 25-29: no need exists for the complexities of combining at the symbol level. Therefore, the gains of diversity combining can be achieved for multipath signal reception without the need for symbol combining. Accordingly, the rejections are improper as the teachings, when viewed as a whole, lead the skilled artisan away from the asserted combination. For at least the aforementioned reasons, Applicant respectfully submits that the rejections are improper and requests that they be withdrawn"*.

The examiner respectfully disagrees. Col. 2, lines 25-29 is referring to the present invention of the reference of Prysby. However, the examiner explicitly cited figure 1, which is located in the background of the invention, wherein frequency shifts are compensated at the symbol level.

Applicant further asserts that, *"it is not clear what the combination is as it is not clear what references are being relied upon, what elements from the references are being implemented nor how the elements are being combined. Moreover, the Examiner has improperly asserted that amplitude normalizer or coefficients are inherent features within a filter. While the relevance of "coefficients" is not readily ascertainable, Applicant*

submits that the Examiner has not properly applied the rules for establishing inherency as set out in M.P.E.P. § 2112. The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference and cannot be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. No extrinsic evidence has been provided that supports the Examiner's contention that all filters necessarily contain amplitude normalizers. As such, the inherency assertion is improper and relies solely on a conclusory statement."

The examiner respectfully disagrees. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the reference of Ling does compensate for channel impairments (frequency shift). Furthermore, one skilled in the art would know that filters are comprised of delay elements, tap coefficients, and multipliers.

Applicant further asserts that, *"the Examiner appears to be taking official notice (as no support is provided for the assertion) that it is "notoriously well known in the art*

that in order to mitigate multi-path interference, it is imperative that an auto correlation be performed on a delayed signal and the signal itself." Per M.P.E.P. § 2144.03, the use of official notice should be rare when an application is under final rejection and it is not appropriate to take official notice of facts without citing a prior art reference unless the facts present an instant and unquestionable demonstration as being well-known".

The examiner respectfully disagrees. The examiner did not, at any point, take official notice. The examiner only said that it is notoriously well known in the art the use of autocorrelation in order to mitigate for multi-path interference. And this can be seen in many patents, books, and articles. However, in order to comply with applicant's request to provide evidence, the examiner is citing various references in which the use of autocorrelation is performed in order to combat multi-path interference.

- Martin et al. (US Patent 5,724,046) (See claim 10)
- Mahamy (US Patent 5,748,676) (See col. 10, lines 26-32)
- Willis (US Patent 5,930,292) (See col. 2, lines 2-9)

Applicant finally asserts that, *"the Examiner's asserted motivation for modifying the system of Sih as modified by Ling and as taught by Ishizu is illogical. The Examiner asserts that the reason to combine is for providing phase compensation. Applicant respectfully submits that the Sih and Ling references already teach phase compensation. As phase compensation is already taught by the Sih and Ling references, the skilled artisan would not be motivated to provide compensation for phase from yet another source".*

The examiner respectfully disagrees. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, since all of the references are in the same field of endeavors, one of ordinary skills in the art would have founded obvious to combine these references in order to yield applicant's claimed invention

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

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3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claim (1, 6-7, 9-11) are rejected under 35 U.S.C. 103(a) as being unpatentable over Sih et al. (hereinafter Sih)(US Patent 6,608,858 B1) in view of Prysby et al (hereinafter Prysby) (US Patent 6,888,878 B2).

Re Claim 1, Sih discloses a rake receiver comprising at least two fingers (In Fig. 7: 700A & B), and a combiner (710) coupled to said fingers (704A).

But the reference of Sih fails to explicitly teach that wherein each of the at least two fingers comprises a finger compensator that compensates for frequency shift at the symbol level.

However, Prysby does. (See fig. 1: 101 & 103) Prysby discloses a plurality of RAKE fingers that provide time and phase compensation at the symbol level.

Furthermore, one skilled in the art would know that frequency is related to the phase.

Therefore, taking the combined teachings of Sih and Prysby as a whole, it would have been obvious to one of ordinary skills in the art to incorporate this feature into the system of Sih, in the manner as claimed and as taught by Prysby, for the benefit of compensating for the channel impairments.

Re Claim 6, the combination of Sih and Prysby further teaches that most fingers each comprise a finger compensator, with all finger compensators together forming said compensator. (In Sih, see fig. 7)

Re Claim 7, the combination of Sih and Prysby further teaches that said rake receiver comprises a mixer for converting intermediate frequency signals into baseband signals, which mixer comprises an oscillator input coupled to a stable oscillator (In Sih, fig. 2, where a mixer 112 and an oscillator 220 are disclosed for converting IF signals to baseband signals).

Claim 9, has been analyzed and rejected w/r to claim 1 above. Furthermore, the combination of Sih and Prysby pertains to a CDMA communications system comprising base stations and mobile units. Communications between base stations and mobile units is by way of mobile telephone switching office (MTSO) and public switch telephone network (PSTN) (In Sih, see col. 1, line 49-55).

Claim 10 has been analyzed and rejected w/r to claim 9 above.

Claim 11 has been analyzed and rejected w/r to claim 9 above.

5. Claims (2 & 3) are rejected under 35 U.S.C. 103(a) as being unpatentable over Sih et al. (hereinafter Sih)(US Patent 6,608,858 B1) and Prysby et al (hereinafter Prysby) (US Patent 6,888,878 B2), as applied to claim 1 above, and further in view of Ling et al (hereinafter Ling) (US Patent 6,363,102 B1).

Re Claim 2, the combination of Sih and Prysby fails to specifically disclose that said finger compensator comprises a filter and an amplitude normalizer coupled serially for receiving an input symbol signal and for generating an output symbol signal.

However, Ling does. (See fig. 3: 160 & col. 7, lines 34-45) Ling discloses a filter and an amplitude normalizer coupled serially for receiving an input symbol signal and for generating an output symbol signal. (See fig. 3: 160) Furthermore, one skilled in the art would know that amplitude normalizer or coefficients are inherent features within a filter.

Therefore, taking the combined teachings of Sih, Prysby, and Ling as a whole, it would have obvious to one of ordinary skill in the art to further incorporate a filter and an amplitude normalizer in the manner as claimed into the system of Sih, as modified by Prysby, for the benefit of producing an estimate of the channel. (See col. 7, lines 34-35)

Re Claim 3, the combination of Sih, Prysby, and Ling further discloses that said finger compensator further comprises a first arithmetical module for multiplying said input symbol signal with a conjugated previous input symbol signal (In Ling, see fig. 2: 140) and a second arithmetical module for multiplying said output symbol signal with a previous output symbol signal as claimed. (It is notoriously well known in the art that in order to mitigate multi-path interference, it is imperative that an auto correlation be performed on a delayed signal and the signal itself.)

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sih et al. (hereinafter Sih)(US Patent 6,608,858 B1), Prysby et al (hereinafter Prysby) (US Patent 6,888,878 B2), and Ling et al (hereinafter Ling) (US Patent 6,363,102 B1), as

applied to claim 2 above, and further in view of Ishizu et al (hereinafter Ishizu) (US Publication 2002/0015438 A1).

Re Claim 4, the combination of Sih, Prysby, and Ling further teaches a rake receiver characterized in that said at least one finger comprises a pilot channel correlator and a traffic channel correlator (In Ling, see fig. 1: 120 & 130).

But the combination of Sih, Prysby, and Ling fail to specifically disclose an output of said finger compensator being coupled to first inputs of a third and fourth arithmetical module, of which second inputs are coupled to outputs of said correlators.

However, Ishizu does. (See fig. 14: 3d & 3e, paragraph 10) Ishizu discloses a an output of said finger compensator being coupled to first inputs of a third and fourth arithmetical module (See fig. 14: the output of element 3c is coupled to elements 3d & 3e, and the output of each despreader, elements 3a & 3b, are second inputs to elements 3d & 3e), of which second inputs are coupled to outputs of said correlators.

Therefore, taking the combined teachings of Sih, Prysby, Ling, Ishizu as a whole, it would have obvious to one of ordinary skill in the art to have modified the system of Sih, as modified by Prysby and Ling, and as taught by Ishizu, for the benefit of providing phase compensation. (See paragraph 10)

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sih et al. (hereinafter Sih)(US Patent 6,608,858 B1), Prysby et al (hereinafter Prysby) (US Patent 6,888,878 B2), Ling et al (hereinafter Ling) (US Patent 6,363,102 B1), and Ishizu et al (hereinafter Ishizu) (US Publication 2002/0015438 A1), as applied to

claim 4 above, and further in view of Huang et al. (hereinafter Huang)(US Patent 6,154,443).

Re Claim 5, the combination of Sih, Prysby, Ling, Ishizu further teaches that wherein said at least one finger comprises an averaging unit (In Sih et al., see Fig. 7: 710), an input (of the average unit) is coupled to an output of said third arithmetical module. (In Ishizu, see fig. 14: the output of element 3e is coupled to a combiner)

But the combination of Sih, Prysby, Ling, and Ishizu fails to teach that, and of which an output is coupled to a first input of a fifth arithmetical module, of which a second input is coupled to an output of said fourth arithmetical module.

However, Huang does. (see Fig. 2A) Huang et al. teaches a CDMA rake receiver that computes a data detection using FFT matched filters. The rake receiver is comprised of a pilot signal spreading code matched filter, data signal spreading code matched filter, channel frequency response estimation unit, channel matched filter, and a pilot interference cancellation unit. The input of the average unit 104, in Huang et al., is coupled to a delay unit 102 & a multiplier 72. And the output of the average unit 104 is coupled to reserve main paths unit 106, complex conjugate 100, and multiplier 96. There is a second input coupled to unit 96 that comes from another multiplier unit 88. Unit 88 is responsible for despreading the data signal. The examiner is taking into consideration that elements 13, 14 & 16 in the applicant's application correspond to elements 72, 88, & 96 respectively of Huang.

Therefore, taking the combined teachings of Sih, Prysby, Ling, Ishizu and Huang as a whole, it would have been obvious to one of ordinary skill in the art to incorporate

an input (of the average unit) is coupled to an output of said third arithmetical module and of which an output is coupled to a first input of a fifth arithmetical module, of which a second input is coupled to an output of said fourth arithmetical module as claimed into the system of Sih, as modified by Prysby, Ling, and Ishizu, in the manner as claimed and as taught by Huang, for the benefit of obtaining compensation due to multi- path interference as noted in Huang (See Summary of the Invention).

8. Claim (1, 6-7, 9-11) are rejected under 35 U.S.C. 103(a) as being unpatentable over Sih et al. (hereinafter Sih)(US Patent 6,608,858 B1)

Re Claim 1, Sih discloses a rake receiver comprising at least two fingers (In Fig. 7: 700A & B), and a combiner (710) coupled to said fingers. (704A)

But the reference of Sih fails to explicitly teach that wherein each of the at least two fingers comprises a finger compensator that compensates for frequency shift at the symbol level.

However, the reference of Sih does teach compensating for frequency offsets at the sample level. But the examiner does not see the difference/advantage of providing frequency offset compensation at the symbol level, as opposed to at the sample level if the objective is to compensate for the channel impairments.

Therefore, it would have been obvious to one of ordinary skills in the art to incorporate this feature into the system of Sih, in the manner as claimed, for the benefit of compensating for the channel impairments.

Re Claim 6, Sih further teaches that most fingers each comprise a finger compensator, with all finger compensators together forming said compensator. (In Sih, see fig. 7)

Re Claim 7, the reference of Sih further teaches that said rake receiver comprises a mixer for converting intermediate frequency signals into baseband signals, which mixer comprises an oscillator input coupled to a stable oscillator (In Sih, see fig. 2, where a mixer 112 and an oscillator 220 are disclosed for converting IF signals to baseband signals).

Claim 9, has been analyzed and rejected w/r to claim 1 above. Furthermore, the reference of Sih pertains to a CDMA communications system comprising base stations and mobile units. Communications between base stations and mobile units is by way of mobile telephone switching office (MTSO) and public switch telephone network (PSTN) (In Sih, see col. 1, line 49-55).

Claim 10 has been analyzed and rejected w/r to claim 9 above.

Claim 11 has been analyzed and rejected w/r to claim 9 above.

9. Claims (2 & 3) are rejected under 35 U.S.C. 103(a) as being unpatentable over Sih et al. (hereinafter Sih)(US Patent 6,608,858 B1), as applied to claim 1 above, and further in view of Ling et al. (hereinafter Ling) (US Patent 6,363,102 B1)

Re Claim 2, the reference of Sih fails to specifically disclose that said finger compensator comprises a filter and an amplitude normalizer coupled serially for receiving an input symbol signal and for generating an output symbol signal.

However, Ling does. (See fig. 3: 160 & col. 7, lines 34-45) Ling discloses a filter and an amplitude normalizer coupled serially for receiving an input symbol signal and for generating an output symbol signal. (See fig. 3: 160) Furthermore, one skilled in the art would know that amplitude normalizer or coefficients are inherent features within a filter.

Therefore, taking the combined teachings of Sih and Ling as a whole, it would have obvious to one of ordinary skill in the art to further incorporate a filter and an amplitude normalizer in the manner as claimed into the system of Sih, for the benefit of producing an estimate of the channel. (See col. 7, lines 34-35)

Re Claim 3, the combination of Sih and Ling further discloses that said finger compensator further comprises a first arithmetical module for multiplying said input symbol signal with a conjugated previous input symbol signal (In Ling, see fig. 2: 140) and a second arithmetical module for multiplying said output symbol signal with a previous output symbol signal as claimed. (It is notoriously well known in the art that in order to mitigate multi-path interference, it is imperative that an auto correlation be performed on a delayed signal and the signal itself.)

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sih et al. (hereinafter Sih)(US Patent 6,608,858 B1) and Ling et al (hereinafter Ling) (US Patent 6,363,102 B1), as applied to claim 2 above, and further in view of Ishizu et al (hereinafter Ishizu) (US Publication 2002/0015438 A1).

Re Claim 4, the combination of Sih and Ling further teaches a rake receiver characterized in that said at least one finger comprises a pilot channel correlator and a traffic channel correlator (In Ling, see fig. 1: 120 & 130).

But the combination of Sih and Ling fails to specifically disclose an output of said finger compensator being coupled to first inputs of a third and fourth arithmetical module, of which second inputs are coupled to outputs of said correlators.

However, Ishizu does. (See fig. 14: 3d & 3e, paragraph 10) Ishizu discloses an output of said finger compensator being coupled to first inputs of a third and fourth arithmetical module (See fig. 14: the output of element 3c is coupled to elements 3d & 3e, and the output of each despreader, elements 3a & 3b, are second inputs to elements 3d & 3e), of which second inputs are coupled to outputs of said correlators.

Therefore, taking the combined teachings of Sih, Ling, and Ishizu as a whole, it would have obvious to one of ordinary skill in the art to have modified the system of Sih, as modified by Ling, and as taught by Ishizu, for the benefit of providing phase compensation. (See paragraph 10)

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sih et al. (hereinafter Sih)(US Patent 6,608,858 B1), Ling et al (hereinafter Ling) (US Patent 6,363,102 B1), and Ishizu et al (hereinafter Ishizu) (US Publication 2002/0015438 A1), as applied to claim 4 above, and further in view of Huang et al. (hereinafter Huang) (US Patent 6,154,443)

Re Claim 5, the combination of Sih, Ling, and Ishizu further teaches wherein said at least one finger comprises an averaging unit (In Sih, see Fig. 7: 710), an input (of the average unit) is coupled to an output of said third arithmetical module (In Ishizu, see fig. 14: the output of element 3e is coupled to a combiner).

But the combination of Sih, Ling, and Ishizu fails to teach that, and of which an output is coupled to a first input of a fifth arithmetical module, of which a second input is coupled to an output of said fourth arithmetical module.

However, Huang does. (see Fig. 2A) Huang teaches a CDMA rake receiver that computes a data detection using FFT matched filters. The rake receiver is comprised of a pilot signal spreading code matched filter, data signal spreading code matched filter, channel frequency response estimation unit, channel matched filter, and a pilot interference cancellation unit. The input of the average unit 104, in Huang et al., is coupled to a delay unit 102 & a multiplier 72. And the output of the average unit 104 is coupled to reserve main paths unit 106, complex conjugate 100, and multiplier 96. There is a second input coupled to unit 96 that comes from another multiplier unit 88. Unit 88 is responsible for despreading the data signal. The examiner is taking into

consideration that elements 13, 14 & 16 in the applicant's application correspond to elements 72, 88, & 96 respectively of Huang.

Therefore, taking the combined teachings of Sih, Ling, Ishuzu and Huang as a whole, it would have been obvious to one of ordinary skill in the art to incorporate an input (of the average unit) is coupled to an output of said third arithmetical module and of which an output is coupled to a first input of a fifth arithmetical module, of which a second input is coupled to an output of said fourth arithmetical module as claimed into the system of Sih, as modified by Ling and Ishuzu, in the manner as claimed and as taught by Huang, for the benefit of obtaining compensation due to multi- path interference as noted in Huang (see Summary of the Invention).

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEON FLORES whose telephone number is (571)270-1201. The examiner can normally be reached on Mon-Fri 7-5pm Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/L. F./
Examiner, Art Unit 2611
June 20, 2008

/David C. Payne/

Supervisory Patent Examiner, Art Unit 2611